

REMARKS/ARGUMENTS

The claims are 2-21. Claim 1 has been canceled and claims 2-18 have been amended to be process claims dependent directly or indirectly on claim 19. These claims including claims 19 have also been amended to improve their form. Reconsideration is expressly requested.

Claims 2, 3, 5, 8, 11, 13, 14 and 17 were objected to for the use of "preferable" ranges or limitations. Claims 1-18 were rejected under 35 U.S.C. 101 as being improper "use" claims. Claims 1-18 were also rejected under 35 U.S.C. 112, second paragraph, as being indefinite for the reasons set forth on page 3 of the Office Action.

In response, Applicant has canceled claim 1, has amended claims 2-18 to be process claims dependent directly or indirectly on claim 19, and has amended these claims to improve their form. It is respectfully submitted that the foregoing amendments overcome the Examiner's objections to the claims and the

rejections of the claims under 35 U.S.C. 101 and 112, second paragraph, and Applicant respectfully requests that such objection and rejections be withdrawn.

Claims 1, 2, 6, 7, and 9-18 were rejected under 35 U.S.C. 103(a) as being unpatentable over *Gajewski U.S. Patent No. 5,895,689* in view of *Oechsle, III U.S. Patent No. 4,267,299*. The remaining claims were rejected under 35 U.S.C. 103(a) as being unpatentable over *Gajewski* and *Oechsle, III* and further in view of *Schreter et al. U.S. Patent No. 3,607,600* (claims 3-5 and 19-21) or *Potter et al. U.S. Patent No. 4,581,433* (claim 8).

Essentially the Examiner's position was that *Gajewski* discloses the use, process, resin and material recited in the claims, except for a polyurethane coating used for synthetic epoxy or of vinyl systems, that *Oechsle, III* discloses this feature, and that it would have been obvious to a person of ordinary skill in the art to use the two-component polyurethane system from *Gajewski* to coat reinforced proxy resin systems as suggested by *Oechsle, III* because *Oechsle, III* is said to suggest

applying PU coatings to reinforced epoxy resins, and such coatings are said to possess abrasion resistance, tear resistance, good load bearing characteristics, high hardness and good solvent resistance. *Schreter et al.* was cited with respect to claims 3-5 and 19-21 as disclosing an uncured polyurethane coat coming into contact with a synthetic resin reinforced with the prescribed materials mentioned in claims 5 and 21. *Potter et al.* was cited with respect to claim 8 as disclosing a method for the determination of the gel time.

This rejection is respectfully traversed.

As set forth in claim 19 as amended, Applicant's invention provides a process for the production of synthetic resin composite materials with polyurethane gel coats, which includes (i) the mixing of a two-component composition and at least partial curing of the mixture to form a gel coat material, and (ii) the bringing of the mixture into contact with synthetic resin, wherein the synthetic resin includes epoxy resin and/or vinyl ester resin and is not, or not completely, cured at the

time when it is brought into contact with the gel coat material.

As discussed at page 1 to page 5, line 2 of Applicant's disclosure, Applicant's process is directed to the problem of providing components for a polyurethane-based gel coat resin system for epoxy resin and/or vinyl ester resin composite materials, in particular, for wind vanes for wind power plants. The components of the gel coat resin system should:

- provide a comparatively long lamination time with a pot life sufficient for the mixing and introduction into the mold and gel and tack-free times sufficient for film formation, but comparatively short;
- be easily processable (i.e. require no additional devices for hot application and/or spray application);
- provide good adhesion between a gel coat and a synthetic resin (in case of long lamination times); and

- have the other properties discussed in Applicant's disclosure.

These problems are solved according to Applicant's process as recited in claim 19 through the use of a specific two-component composition including (A) a polyol component containing one or several polyols and one or several aromatic amines and having a specific hydroxyl group concentration, and (B) a polyisocyanate component which contains one or several aromatic polyisocyanates. As shown in the examples, see in particular Table 3 at page 18 and Table 5 at page 20, it is in particular the specific hydroxyl group concentration of 0.5 to 10 mol hydroxyl groups per kg of polyol component as well as the presence of the aromatic amine in the polyol component that ensure a long lamination time and good adhesion between gel coat and synthetic resin, while providing for good elongation-at-break..

Again, Applicant wishes to reiterate that Applicant's process as recited in claim 19 as amended involves the mixing of

a polyol component and a polyisocyanate component. None of the cited references discloses or suggests a process for the production of synthetic resin composite materials with polyurethane gel coats in which a mixture of a specific polyisocyanate component and a specific polyol component are cured.

The primary reference to *Gajewski* relates to elastomeric coverings for rolls. *Gajewski* teaches the curing of a prepolymer with polyol (see column 2, lines 10 to 17 of *Gajewski*). As can be gathered, e.g. from column 6 of *Gajewski*, where the importance of a very fast curing of the composition of *Gajewski* is emphasized, the teaching of *Gajewski* is in direct contradiction to the requirements for a gel coat composition for a composite of a wind vane of a wind power plant.

The defects and deficiencies of the primary reference to *Gajewski* are nowhere remedied by any of the secondary references. *Oechsle, III* is a truly remote document which it is respectfully submitted would not have been taken into account by a person

skilled in the art when trying to solve problems with polyurethane gel coats for epoxy resin and vinyl ester resin composite materials for wind vanes for wind power plants.

Firstly, *Oechsle, III* relates to a spray application (column 2, line 42 of *Oechsle, III*). In contrast, Applicant's process involves a mold process. Secondly, the system suggested in *Oechsle, III* is prepared from a urethane prepolymer or quasi-prepolymer, which is cured by chain extenders, such as polyol (if a urethane polymer is desired), or amine (if a poly(urea)urethane is desired). There is no disclosure or suggestion in *Oechsle, III* of mixing of an aromatic amine-containing polyol component with an aromatic polyisocyanate-containing polyisocyanate component and curing of this mixture to form a gel coat material. The prepolymer of *Oechsle, III* which may be reacted with a polyol is not a polyisocyanate which it is respectfully submitted is clear to a person of ordinary skill in the art and also from the terminology in *Oechsle, III* which distinguishes between polyisocyanates and prepolymers. See column 4, starting in line 58 of *Oechsle, III*.

In other words, the isocyanate in *Oechsle, III* has been reacted so as to form a prepolymer. The subsequent curing of the prepolymer as in *Oechsle, III* is contrary to Applicant's process as recited in claim 19 as amended which requires the curing of the mixture of polyol and polyisocyanate so as to form a gel coat.

It should also be noted that *Oechsle, III* explicitly states that mold processes are disadvantageous. See column 2, lines 4-18. According to *Oechsle, III*, curing is completed very quickly. See column 3, lines 16-51. The properties of the system suggested by *Oechsle, III* thus are in direct contradiction to the requirements of a gel coat for a wind vane of a wind power plant.

Like *Oechsle, III*, *Schreter et al.* suggests a system prepared from a urethane prepolymer. *Schreter et al.* relates to laminated articles composed of an elastomeric surface layer and a backing layer of reinforced synthetic resin. As set out in the example in column 5, lines 1-62, *Schreter et al.* suggests

preparing a (two-layer) polyurethane coating from a liquid polyether polyurethane prepolymer and an aromatic amine (4, 4'-methylene-bis-2 chloroaniline). See column 5, lines 7 to 30 of *Schreter et al.* Using these components (prepolymer plus aromatic amine) results in a tack-free time of several hours. Direct (chemical) adhesion is not mentioned in *Schreter et al.* Instead, the bonding between the (polyurethane) elastomer and the (polyester) synthetic resin is mechanical. See the reference to "bonding fibers" at column 6, line 16 of *Schreter et al.* There is no disclosure or suggestion of the mixing of an aromatic amine-containing polyol component and an aromatic polyisocyanate containing polyisocyanate component so as to form a gel coat material.

Potter et al. is also a remote document. *Potter et al.* also relates only to the reaction of a prepolymer with amine to produce a coating. As *Potter et al.* has been cited with respect to claim 8, it is believed that the Examiner may have a misunderstanding with respect to the subject matter of Applicant's claim 8. Claim 8 does not claim a process to

determine the gel time, but rather is a process for the production of synthetic resin composite materials with polyurethane gel coats. Applicant's claim 8 which depends on claim 19 merely defines the aromatic amine used in the polyol component by a gel time in the specified test.

Accordingly, all of the prior art documents cited in the Office Action relate to the reaction of a prepolymer with curing agent (amine and/or polyol) whereas Applicant's process as recited in claim 19 requires the curing of a mixture of a specific polyisocyanate component and specific polyol component. It is respectfully submitted that there is no disclosure or suggestion or even an indication in any of these references towards Applicant's process as recited in claim 19 as amended or the two-component composition used therein.

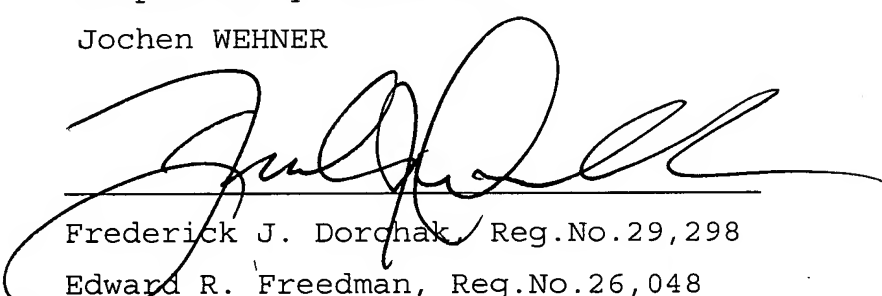
Accordingly, it is respectfully submitted that claim 19 as amended, together with claims 2-18 and 20-21 which depend directly or indirectly thereon, are patentable over the cited references.

In summary, claims 2-19 have been amended and claim 1 has been canceled. In view of the foregoing, it is respectfully requested that the claims be allowed and that this application be passed to issue.

Applicant also submits herewith a Sixth Supplemental Information Disclosure Statement.

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